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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/728,012	12/03/2003	Larry Lynn Williams	HSJ920030057US1	7275

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EXAMINER
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PATEL, HETUL B

ART UNIT	PAPER NUMBER
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2186

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/27/2006	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/728,012

Applicant(s)

WILLIAMS, LARRY LYNN

Examiner

Hetul Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 and 22-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 22-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

  
MATTHEW KIM  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100

### **DETAILED ACTION**

1. This office action is in response to the communication filed on December 01, 2006. Claims 1, 3 and 5 are amended and claims 22-33 are newly added.
2. Applicant's arguments filed on December 01, 2006 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "said medium" in line 4. There is insufficient antecedent basis for this limitation in the claim.

### ***Double Patenting***

4. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in

scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

5. Applicant is advised that should claim 25 be found allowable, claim 29 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim: See MPEP § 706.03(k).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 6, 22-24 and 28 are rejected under 35 U.S.C. 102(e) as being anticipated by Smith (USPN: 2004/0103337).

As per claim 1, Smith teaches a storage device (i.e. the disk drive module (DDM) 16 in Fig. 1) having a lateral storage director (i.e. the combination of 40 and 42 in Fig. 1), comprising:

- at least one storage medium (i.e. the medium on which the data are magnetically recorded; see paragraph [0033]);
- at least one recording transducer (i.e. the one or more heads that are used to read/write the data; see paragraph [0033]) capable of recording data on said storage medium and reading data from said medium;
- a storage device controller (i.e. the RAID controller 14 in Fig. 1) to control reading data from said storage medium and writing data to said storage medium; and
- an interface (i.e. *inherently* present in DDM 16 to communicate with RAID controller 14 via the bus 20 in Fig. 1) having an interface control adapted to interface the storage device controller with a host (e.g. see Fig. 1 and paragraphs [0027] and [0033]);
- wherein the lateral storage director (i.e. the combination of 40 and 42 in Fig. 1) has a capability of communicating with the storage device controller (i.e. the RAID controller 14 in Fig. 1), said lateral storage director is coupled with a communication link (i.e. the bus 17 in Fig 1), and said lateral storage director has a capability of communicating with a lateral storage director of another storage device via said communication link (i.e. the combination of 40 and 42 of one storage device is capable of communicating with the combination of 40 and 42 of the other storage device via the bus 20 in Fig. 1) (e.g. see Fig. 1 and paragraphs [0027] and [0033]).

As per claim 6, BOI teaches the claimed invention as described above and furthermore, BOI teaches that the storage device is a disk drive (i.e. 16 in Fig. 2).

As per claim 22, Smith teaches a computer system (i.e. 10 in Fig. 1), comprising:

- a storage controller (i.e. the RAID controller 14 in Fig. 1);
- a plurality of storage devices (i.e. disk drive modules (DDMs), 16 in Fig. 1), each having a lateral storage director (LSD) (i.e. the combination of 40 and 42 in Fig. 1);
- a communication link (i.e. 20 in Fig. 1) for communicating between the storage controller and the plurality of storage devices;
- a host (i.e. the processor 24 in Fig. 1) for commanding the storage controller to pass data files to or from one or more of the plurality of storage devices via the communication link; and wherein the LSDs in the plurality of storage devices also communicate directly with each other over the communication link without communication with the storage controller or host (i.e. each of the plurality of DDMs can communicate directly with each other via bus 20 as shown in Fig. 1) (e.g. see Fig. 1).

As per claim 23, Smith teaches the claimed invention as described above, and furthermore Smith teaches that each of the plurality of storage devices (i.e. DDMs 16 in Fig. 1) has its own storage device controller (i.e. 40 in Fig. 1), and the LSDs are programs of computer commands (i.e. the PFA code 42 in Fig. 1) usable by respective ones of the storage device controllers (e.g. see Fig. 1 and paragraph [0033]).

As per claim 24, Smith teaches the claimed invention as described above, and furthermore Smith teaches that each of the LSDs (i.e. the combination of 40 and 42 in Fig. 1) are separately embodied as individual microprocessors that are physically separate from respective ones of the storage devices (i.e. the controllers may also be physically separate from the DDM) (e.g. see paragraph [0033]).

As per claim 28, Smith teaches the claimed invention as described above, and furthermore Smith teaches that the plurality of storage devices are selected from the group consisting of disk drives, optical drives and tape drives (i.e. Smith teaches that DDM are disk drives 16 as shown in Fig. 2).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over BOI in view of Smith (USPN: 2004/0103337).

As per claim 1, BOI teaches a storage device (i.e. 200 in Fig. 2), comprising:

- at least one storage medium (i.e. the disk 214 in Fig. 2);
- at least one recording transducer (i.e. the recording head 212 in Fig. 2) capable of recording data on said storage medium and reading data from said medium;

- a storage device controller (i.e. the drive controller 202 in Fig. 2) to control reading data from said storage medium and writing data to said storage medium; and
- an interface (i.e. 204 in Fig. 2, which is commonly a SCSI bus or Fibre channel) having an interface control (i.e. 208 in Fig. 2) adapted to interface the storage device controller with a host (e.g. see Fig. 2 and page 9, lines 3-25).

However, BOI does not clearly disclose of having a lateral storage director. Smith, on the other hand, teaches a RAID storage system (i.e. 11 in Fig. 1) having a plurality of disk drive modules (i.e. 16 in Fig. 1) as shown in Fig. 1. Each of these disk drive modules has lateral storage director (i.e. the combination of 40 and 42 in Fig. 1) as claimed. Each of these lateral storage directors has a capability of communicating with the storage device controller (i.e. the RAID controller 14 in Fig. 1), said lateral storage director is coupled with a communication link (i.e. the bus 17 in Fig 1), and said lateral storage director has a capability of communicating with a lateral storage director of another storage device via said communication link (i.e. the combination of 40 and 42 of one storage device is capable of communicating with the combination of 40 and 42 of the other storage device via the bus 20 in Fig. 1) (e.g. see Fig. 1 and paragraphs [0027] and [0033]). Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the current invention was made to implement the lateral storage director taught by Smith in the storage device taught by BOI. In doing so, the predictive failure analysis can be performed



on the storage device to detect any error(s) in the storage device before its failure (e.g. see paragraph [0033]).

As per claim 6, BOI teaches the claimed invention as described above and furthermore, BOI teaches that the storage device is a disk drive (i.e. 200 in Fig. 2).

As per claims 6-8, BOI teaches the claimed invention as described above and furthermore, BOI teaches that the storage device can be one of a disk drive, an optical drive, a flash memory, a tape drive and the like are used to store most of the digital data in contemporary computer systems (e.g. see page 1, lines 9-11).

8. Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over BOI in view of Smith, further in view of Swidler et al. (USPN: 6,859,846) hereinafter, Swidler.

As per claims 2 and 3, the combination of BOI and Smith teaches the claimed invention as described above, and furthermore BOI teaches that the interface comprises one of a SCSI bus and a Fibre channel (e.g. see page 9, lines 6-8). However, both BOI and Smith failed to teach that the lateral storage director includes a communications link address which may be used to accept a query by a lateral storage director of another disk drive. Swidler, on the other hand, teaches about having a data file table associated with the stored data in the storage device and the data file table stores the identifying information which used to accept a query by a lateral storage director of another disk drive (e.g. see Col. 5, lines 19+). Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the current invention was made to implement Swidler's teachings in the storage device taught by the combination of BOI and Smith.

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In doing so, data stored in one storage device can be identified by the data file table and can be transferred to other storage device within network.

As per claims 4 and 5, the combination of BOI and Smith teaches the claimed invention as described above and furthermore, Smith teaches that the lateral storage director (the combination of 40 and 42 in Fig. 1) is capable of monitoring a performance parameter selected from the group consisting of data traffic balance, seek duty cycle, and predictive failure indicators (i.e. the predictive failure analysis code (i.e. 42 in Fig. 1) programs controller (i.e. 40 in Fig. 1) to perform predictive failure analysis) (e.g. see paragraph [0033]). However, neither BOI nor Smith teaches that the lateral storage director has the capability of determining the available storage space of the storage device. Swidler, however, teaches that about repeating the data transfer process when the next available media storage device does not have capacity to record remaining portions of the stream of data, until the stream of data is fully recorded (e.g. see Col. 5, lines 25+). Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the current invention was made to implement Swidler's teachings in the storage device taught by the combination of BOI and Smith so if the current storage device does not have enough capacity (i.e. free space) to store the stream of data, it would be stored in the next available storage device until the stream of data is fully recorded.

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9. Claims 2-5, 25-27 and 29-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith in view of Swidler et al. (USPN: 6,859,846) hereinafter, Swidler.

As per claims 2 and 3, Smith teaches the claimed invention as described above, but failed to teach that the lateral storage director includes a communications link address which may be used to accept a query by a lateral storage director of another disk drive. Swidler, on the other hand, teaches about having a data file table associated with the stored data in the storage device and the data file table stores the identifying information which used to accept a query by a lateral storage director of another disk drive (e.g. see Col. 5, lines 19+). Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the current invention was made to implement Swidler's teachings in the storage device taught by Smith. In doing so, data stored in one storage device can be identified by the data file table and can be transferred to other storage device within network.

As per claims 4 and 5, Smith teaches the claimed invention as described above and furthermore, Smith teaches that the lateral storage director (the combination of 40 and 42 in Fig. 1) is capable of monitoring a performance parameter selected from the group consisting of data traffic balance, seek duty cycle, and predictive failure indicators (i.e. the predictive failure analysis code (i.e. 42 in Fig. 1) programs controller (i.e. 40 in Fig. 1) to perform predictive failure analysis) (e.g. see paragraph [0033]). However, Smith does not teach that the lateral storage director has the capability of determining the available storage space of the storage device. Swidler, however, teaches that about

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repeating the data transfer process when the next available media storage device does not have capacity to record remaining portions of the stream of data, until the stream of data is fully recorded (e.g. see Col. 5, lines 25+). Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the current invention was made to implement Swidler's teachings in the storage device taught by Smith so if the current storage device does not have enough capacity (i.e. free space) to store the stream of data, it would be stored in the next available storage device until the stream of data is fully recorded.

As per claims 25 and 29, see arguments with respect to the rejection of claim 2. Claims 25 and 29 are also rejected based on the same rationale as the rejection of claim 2.

As per claims 26 and 32, see arguments with respect to the rejection of claims 3 and 5. Claims 26 and 32 are also rejected based on the same rationale as the rejection of claims 3 and 5.

As per claim 27, see arguments with respect to the rejection of claim 4. Claim 27 is also rejected based on the same rationale as the rejection of claim 4.

As per claim 30, the combination of Smith and Swidler teaches the claimed invention as described above, and furthermore Smith teaches that each of the plurality of storage devices (i.e. DDMs 16 in Fig. 1) has its own storage device controller (i.e. 40 in Fig. 1), and the LSDs are programs of computer commands (i.e. the PFA code 42 in Fig. 1) usable by respective ones of the storage device controllers (e.g. see Fig. 1 and paragraph [0033]).

As per claim 31, the combination of Smith and Swidler teaches the claimed invention as described above, and furthermore Smith teaches that each of the LSDs (i.e. the combination of 40 and 42 in Fig. 1) are separately embodied as individual microprocessors that are physically separate from respective ones of the storage devices (i.e. the controllers may also be physically separate from the DDM) (e.g. see paragraph [0033]).

As per claim 33, the combination of Smith and Swidler teaches the claimed invention as described above, and furthermore Smith teaches that the plurality of storage devices are selected from the group consisting of disk drives, tape drives, and optical drives (i.e. Smith teaches that DDM are disk drives 16 as shown in Fig. 2).

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hetul Patel whose telephone number is 571-272-4184. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on 571-272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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